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A METHOD AND APPARATUS FOR CONTROLLING A DISK DRIVE UNDER A POWER LOSS CONDITION

Field of the Invention

- 5 This invention relates to a control system and method which is applicable for use in data storage disk drives and the like, particularly when a loss of supply power occurs during operation.

Background

- 10 A typical data storage disk drive comprises at least one disk on which data is stored in magnetic or optical form, a head mounted on an arm to read/write from the disk surface and necessary control circuits. The disk is rotated at a constant velocity by a spindle motor and the arm is moved over the disk surface to access different locations on the disk surface by a voice coil motor (VCM). Upon power failure, in order to avoid physical damage to the disk
- 15 storage surface as well as the read/write heads, the read/write head assembly should be positioned away from the disk data storage surface (referred to as parking the arm). Under power failure conditions the energy required to drive the voice coil motor may have to be derived from a secondary source, and in this case energy remaining in the spindle motor can be used by the disk drive circuits to operate the voice coil motor to park the arm.

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Summary of the Invention

- In accordance with the present invention, there is provided a method for controlling a motorized mechanism in the event of external power loss, the motorized mechanism comprising first and second motors coupled to a common driving circuit, said first motor
- 25 being arranged to rotate at a substantially constant rate with external electrical power applied to the driving circuit, wherein in the event of loss of said external electrical power to the driving circuit, the driving-circuit is controlled so as to connect and disconnect the first and second motors to the driving circuit in substantially out-of-phase synchronism to enable said second motor to be driven with electrical power derived from back-emf of the rotating first
- 30 motor.

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